Claims

1. Apparatus for estimating the weight of an occupant of a vehicle seat supported by a floor bracket mounted on a vehicle floor, the apparatus comprising:

a force sensor; and

a compliant linkage assembly interposed between said floor bracket and a mounting bracket of said seat, including linkage arms rotatably coupled to said floor bracket and said mounting bracket, a slider member supported for linear movement substantially parallel to said vehicle floor, and means for biasing said slider member into engagement with said force sensor, said linkage arms being coupled to said slider member such that occupant weight applied to said seat produces linear movement of said slider member that increases an engagement force between said slider member and said force sensor, whereby said force sensor produces an output signal indicative of said occupant weight.

2. The apparatus of Claim 1, wherein said means for biasing said slider member into engagement with said force sensor includes a spring.

3. The apparatus of Claim 2, wherein said spring is a coil spring that exerts a linear bias force substantially parallel to said vehicle floor.

4. The apparatus of Claim 2, wherein said spring is a torsion spring coupled to at least one of said linkage arms.

5. The apparatus of Claim 1, wherein said linkage arms include a first arm coupled between said seat mounting bracket and said floor bracket and a

second arm coupled between said seat mounting bracket and said slider member, and the means for biasing said slider member into engagement with said force sensor also biases said first and second arms to be collinear with the linear movement of said slider.

6. The apparatus of Claim 5, wherein the means for biasing said slider member into engagement with said force sensor has a null condition when the linkage arms are collinear with the linear movement of said slider, and the linkage arms have lengths such that said bias force is substantially constant for any position of said linkage arms.

7. The apparatus of Claim 1, wherein said linkage arms include a first arm coupled between said seat mounting bracket and said floor bracket and a second arm coupled between said seat mounting bracket and said slider member, and at least one of said first and second linkage arms are compliant for biasing said slider member into engagement with said force sensor.

8. The apparatus of Claim 1, wherein said linkage assembly includes overload means for anchoring said seat to said floor bracket to prevent said seat from becoming detached from said floor bracket.

9. The apparatus of Claim 1, wherein said linkage arms include a first arm coupled between said seat mounting bracket and said floor bracket, a second arm coupled between said seat mounting bracket and said slider member, and third and fourth co-joined arms coupled between said floor bracket and said slider member.

10. The apparatus of Claim 1, wherein said linkage assembly is defined by a compliant device including first and second lever arms rotatably coupled to said seat mounting bracket and said floor bracket, where said lever arms are joined at a fulcrum that defines said slider block.

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11. The apparatus of Claim 10, wherein said compliant device includes a circumferential arm joining the first and second lever arms to a reaction surface for said force sensor.

12. The apparatus of Claim 1, wherein said seat includes a set of mounting brackets, and the apparatus includes a force sensor and compliant linkage assembly for each such seat mounting bracket, and the force sensors are co-located in pairs to facilitate electrical connections to the force sensors.